

# LITHOLOGIC DESCRIPTION OF SAMPLES SUBMITTED FOR ASSAY<sup>1/</sup>

Core samples of the Green River Formation from Equity Oil Company's  
Oldland Corehole 3 drilled in 1964 in NE1/4 sec 10, T 3 S, R 96 W  
6th P.M., Rio Blanco County, Colorado

Surface elevation: 6456 feet  
Sampled section: 1499 to 2395 feet

From	To	Description
1499.0	1508.0	Oil shale: medium to dark brownish gray and rare dark brown (10YR and 2.5Y 4/2-3/2; some 5/2 and 3/1, rare 3/3). Very faint smooth to slightly distorted laminations and some streaked bedding. Irregular to some slightly irregular thick parting; conchoidal to irregular fracture. Some small irregular tan to brown, earthy to crystalline lenses and streaks. Common small to medium irregular dark brownish gray to colorless crystalline lenses from 1500.7 to 1501.4 feet. Some small irregular brownish gray to black lenses and stringers with rare fine slightly iridescent crystals at 1502.9 and 1503.4 feet. Sample of brownish gray crystalline lens from 1501.2 feet: X-ray - dawsonite, quartz, calcite. Sample of brownish gray to black stringer with rare fine iridescent crystals from 1502.9 feet: X-ray - dawsonite, pyrite, calcite.
1508.0	1510.0	Oil shale: medium to dark brownish gray (10YR 4/2-3/2, some 3/1, rare 5/2 and 2/2). Very faint and rare moderately distinct, slightly irregular and distorted laminations. Irregular thick parting; irregular to conchoidal fracture. Some small irregular tan to dark brown, crystalline and rare earthy lenses and streaks with very rare pyrite.
1510.0	1513.5	Oil shale: dark and very rare medium brownish gray (10YR 3/2-3/1, rare 4/2). Very faint slightly distorted laminations and streaked bedding. Irregular thick parting; conchoidal to irregular fracture. Rare tan to brown lenses and streaks in upper part. Rare resinous streaks in middle and lower parts.
1513.5	1514.5	Oil shale: dark brownish gray and rare brownish black (10YR 3/2 and 3/1-2/2, rare 1/2). Very faint smooth to slightly distorted laminations and streaked bedding. Irregular thick parting; conchoidal fracture. A thin dense brownish gray dolomite band with two short parallel vertical fractures with gilsonite-like fillings at 1513.9 feet.

<sup>1/</sup> By L. G. Trudell

# LITHOLOGIC DESCRIPTION OF SAMPLES SUBMITTED FOR ASSAY

Core samples from Equity Oil Company's Oldland Corehole 3--Continued

From	To	Description
1523.3	1525.3	Oil shale: dark brownish gray (10YR and 2.5Y 3/2-2/2); some satiny to resinous luster--especially in lower part. Very faint smooth to some irregular distorted laminations; common small to moderately large loop structures and displacements. Slightly irregular to irregular, thick to some thin parting; irregular to some hackly fracture.
1525.3	1526.3	Oil shale: dark and rare medium brownish gray to some brownish black (10YR 3/2-2/2, some 1/2, rare 4/2-4/1). Very faint to faint smooth laminations; some very small irregular loop structures and displacements. Irregular thick to medium parting; conchoidal to irregular fracture. A thin dark brown to brownish-gray dolomite band near base.
1526.3	1527.5	Oil shale: medium to dark brown and brownish gray (10YR and 2.5Y 4/3-2/2, rare 5/3). Moderately distinct to very faint distorted laminations, stringers, and streaks; common loop structures and displacements in upper half. Irregular to some slightly irregular thick parting; conchoidal to fairly smooth fracture.
1527.5	1528.6	Oil shale: dark and some medium brownish gray (10YR and 2.5Y 3/2, some 4/2, rare 2/2); very rare fine satiny to resinous streaks. Very faint distorted streaks, stringers, and rare laminations. Irregular thick parting; irregular to conchoidal fracture. Some small irregular brown crystalline patches.
1528.6	1532.5	Oil shale: dark brownish gray and rare brownish black (10YR 3/2-2/2, rare 1/2); some satiny to resinous streaks. Faint distorted streaked bedding. Irregular thick parting; irregular to conchoidal and rare coarse hackly fracture. Some small tan to brown earthy to crystalline patches and streaks. Rare fine waxy to vitreous black organic streaks. Rare thin dense dark brown dolomite streaks and lenses in lower part.
1532.5	1534.5	Oil shale: dark and some medium brownish gray (10YR 3/2-2/2, some 4/2). Very faint smooth laminations; common small loop structures and displacements. Irregular to slightly irregular thick parting; slightly irregular to slightly conchoidal fracture.
1534.5	1535.5	Oil shale: dark brownish gray (10YR 3/2-2/2). Very faint smooth to slightly distorted laminations; very common small to medium loop structures and displacements. Irregular to slightly irregular thick parting; irregular fracture. A very fine columnar marcasite (?) streak with some brown to black crystalline material at 1535.2 feet (like Core BX-1, 1685.4 feet?).

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# LITHOLOGIC DESCRIPTION OF SAMPLES SUBMITTED FOR ASSAY

Core samples from Equity Oil Company's Oldland Corehole 3--Continued

From	To	Description
1545.4	1548.8	Oil shale: dark brownish gray (10YR 3/2-2/2); some satiny luster in lower part. Very faint smooth to slightly distorted laminations and rare streaked bedding; some loop structures in lower part. Irregular to slightly irregular thick parting; irregular to rare hackly fracture. Very rare very fine crystalline streaks.
1548.8	1549.9	Oil shale: dark brownish gray to brownish black (10YR 2/2-1/2). Very faint slightly distorted to smooth laminations and streaked bedding. Irregular thick to medium parting; irregular to rare coarse hackly fracture. Common fine brown crystalline streaks and lenses--some with common pyrite. Sample of shale with fine crystalline streaks from 1549.4 feet: X-ray - pyrite; some quartz, dawsonite.
1549.9	1551.4	Oil shale: dark brownish gray and rare brownish black (10YR 3/2-2/2, rare 1/2). Very faint slightly distorted to very smooth laminations. Irregular thick to medium parting; irregular to conchoidal and rare coarse hackly fracture. Very rare fine vitreous black organic streaks.
1551.4	1553.9	Oil shale: dark brownish gray (10YR 3/2, some 2/2). Very faint smooth to slightly distorted laminations; some very small loop structures and displacements. Irregular to some regular thick parting; slightly irregular to slightly conchoidal fracture. Some very fine disseminated crystals.
1553.9	1555.3	Oil shale: dark brownish gray (10YR 3/2-2/2), some satiny to resinous luster. Very faint smooth laminations to distorted streaks and stringers; some loop structures in upper part. Irregular thick parting; irregular fracture. Some thin buff lenses or inclusions in lower part.
1555.3	1556.4	Oil shale: medium to dark brownish gray (10YR and 2.5Y 4/2-3/2, rare 5/2). Faint distorted streaks, stringers, and rare laminations. Irregular thick parting; slightly irregular to conchoidal fracture. Some small irregular buff to brown crystalline lenses and streaks.
1556.4	1559.4	Oil shale: dark to rare medium brownish gray and brown (10YR and 2.5Y 3/2 and 3/3-2/2, rare 4/2). Faint distorted streaks, stringers, and lenses. Irregular thick parting; irregular and rare hackly fracture. Some small irregular tan to brown crystalline lenses. Some small irregular tan to buff marlstone inclusions in upper part--

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# LITHOLOGIC DESCRIPTION OF SAMPLES SUBMITTED FOR ASSAY

Core samples from Equity Oil Company's Oldland Corehole 3--Continued

From	To	Description
		parts. A 1/2-inch dense brownish gray dolomite band with short vertical fractures at 1567.9 feet. Rare fine crystalline streaks near base.
		Sample of almost neutral gray shale with very fine disseminated crystals from 1567.5 feet:
		X-ray - quartz; some dolomite, dawsonite, feldspar (Na and K), illite, pyrite.
1569.0	1570.5	Oil shale: medium olive gray and brownish gray to some buff, rare dark olive gray and brown (5Y 5/2-4/2, rare 3/1; 2.5Y 5/2-4/2, some 6/2-7/2; rare 10YR 4/3-3/3). Distinct to faint, smooth to distorted laminations and streaked bedding. Irregular thick parting; irregular to conchoidal fracture. Common fine to rare medium dense gray to buff dolomite laminae, streaks, and lenses with some short vertical fractures. Some small dark brown crystalline patches in dolomite near base.
1570.5	1573.8	Oil shale: medium to dark brownish gray (10YR 4/2-3/2, some 2/2, rare 3/1-2/1). Faint distorted streaked bedding. Very irregular to some slightly irregular thick parting; irregular to conchoidal fracture. Some small to moderately large irregular tan to buff dolomite inclusions in lower part.
1573.8	1575.4	Oil shale: dark brownish gray (10YR 3/2-2/2, some 3/1-2/1). Faint to very faint, smooth to slightly irregular and distorted laminations; common fine to small loop structures in lower part. Irregular thick to medium parting; slightly conchoidal to irregular fracture. Very rare fine gray pyritic streaks. Some fine dense tan dolomite laminae and streaks 1574.8 feet.
1575.4	1576.4	Oil shale: dark and some medium brownish gray (10YR and 2.5Y 3/2-2/2, some 4/2). Faint to very faint distorted laminations and streaked bedding; some irregular loop structures and displacements. Irregular thick to medium parting; irregular and rare hackly fracture.
1576.4	1578.9	Oil shale: medium brownish gray and some brown to rare tan (10YR and 2.5Y 4/2, some 4/3-5/2 and 5/3, rare 6/3; rare slight olive tint). Very faint to rare distinct, fairly smooth to distorted and displaced laminations and streaked bedding. Irregular to some regular thick parting; irregular to slightly conchoidal fracture. Rare very small brown crystalline patches and streaks in upper part. Very rare small black plant fossils on parting surfaces.

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Laramie Petroleum Research Center, Laramie, Wyoming

May 12, 1965

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Core samples from Equity Oil Company's Oldland Corehole 3--Continued

From	To	Description
1596.5	1600.0	Oil shale: dark brownish gray and some brownish black (10YR 3/2-2/2, some 1/2). Very faint fairly smooth to some very distorted streaks, stringers, and laminations. Slightly irregular to irregular thick parting; irregular to hackly fracture. Some very fine disseminated crystals and crystalline streaks; some small irregular tan to brownish black crystalline lenses in middle part (some very pyritic). Some irregular and displaced brown dolomite stringers and lenses at 1598.9 feet with fine irregular fractures with resinous brown to black coatings. Sample of rich oil shale with fine pyritic streaks from 1597.7 feet: X-ray - quartz, illite, Na-feldspar, pyrite, dawsonite, calcite.
1600.0	1603.0	Oil shale: dark brownish gray (10YR and 2.5Y 3/2-2/2 and 2/1). <u>Very</u> faint smooth to slightly distorted laminations and streaked bedding. Irregular to some slightly irregular, thick to rare thin parting; conchoidal to irregular fracture. Very rare fine vitreous black streaks. Sample of very faintly bedded oil shale from 1600.8 feet: X-ray - quartz, dawsonite, dolomite, feldspar (Na and K), illite, pyrite.
1603.0	1607.3	Oil shale: dark to rare medium brownish gray and brown (10YR and 2.5Y 3/2 and 3/3-2/2, rare 4/2-5/3). Very faint to faint, fairly smooth to distorted streaked bedding and rare laminations. Irregular to slightly irregular, thick to medium parting; slightly irregular to irregular fracture. Some to fairly common small irregular medium to dark brownish gray crystalline lenses (common acicular to bladed crystals). Rare small irregular brown to buff dolomite (?) lenses and stringers.
1607.3	1612.5	Oil shale: dark brownish gray to brownish black (10YR 2/2 and 2/1-1/2, some 3/2 upper part). <u>Very</u> faint smooth to slightly distorted laminations and streaked bedding. Irregular to slightly irregular, thick to medium parting; irregular to hackly fracture. Some to very common fine disseminated crystals and crystalline streaks; some small brown crystalline lenses with radiating acicular crystals.

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Core samples from Equity Oil Company's Oldland Corehole 3--Continued

From	To	Description
1620.6	1622.9	Oil shale: dark brownish gray (2.5Y 2/2-3/2). Very faint very smooth laminations and streaked bedding. Slightly irregular to regular, thick to thin shaly parting; slight hackly to conchoidal fracture. Common to rare fine crystalline streaks.
1622.9	1624.9	Oil shale: dark and some medium brownish gray (2.5Y 3/2 and 3/1-2/2 and 2/1, some 4/1 lower part). Very faint very smooth to some distorted and displaced laminations. Very regular to slightly irregular medium to thin shaly parting; slight hackly fracture. Rare thin dense gray bands in lower part (like 1617.2 feet?).
1624.9	1630.0	Oil shale: medium to dark brownish gray (10YR 4/1-3/1 and 3/2). Very faint smooth to rare distorted laminations and streaked bedding. Very regular to slightly irregular, thick to thin shaly parting; slight hackly to irregular and some conchoidal fracture. Some medium to thin dense gray to brownish gray bands and rare thin irregular stringers. Sample of oil shale with very regular thin shaly parting from 1625.4 feet: X-ray - quartz, dawsonite, K-feldspar; some dolomite, pyrite, illite, calcite.
1630.0	1632.0	Oil shale: dark brownish gray (10YR 3/2-2/2). Very faint smooth to slightly distorted laminations and streaked bedding. Regular to some irregular, thick to medium shaly parting; irregular fracture. Rare dense brown to gray dolomite bands with short bitumen-coated fractures. Common very fine disseminated crystals in lower part. Sample of oil shale with very fine disseminated crystals from 1631.9 feet: X-ray - dawsonite, quartz, dolomite, feldspar (K and Na), illite.
1632.0	1633.0	Oil shale: medium to dark brownish gray (10YR 4/2-3/2 and 3/1, rare 2/2). Faint slightly distorted laminations. Regular to slightly irregular, thick to some thin shaly parting; irregular fracture. Some thin dense brownish gray dolomite bands with common short vertical fractures. Some very fine disseminated crystals.
1633.0	1636.0	Oil shale: dark brownish gray (10YR 3/2 and 3/1-2/2, some 2/1 upper part). <u>Very</u> faint smooth to slightly distorted laminations and streaked bedding. Regular to some irregular, thick to medium shaly parting; irregular to conchoidal fracture. Rare thin dense dark gray bands and stringers. Rare very fine vitreous black streaks in upper part.

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# LITHOLOGIC DESCRIPTION OF SAMPLES SUBMITTED FOR ASSAY

Core samples from Equity Oil Company's Oldland Corehole 3--Continued

From	To	Description
1650.0	1652.5	Marlstone and some oil shale: buff to some medium brownish gray (10YR and 2.5Y 7/2 and 7/1-6/2 and 6/1, some 5/2, rare 4/2). Very faint to some distinct, smooth to some very distorted and displaced laminations. Regular to rare irregular, thick to some thin shaly parting (common unctuous parting surfaces); slightly irregular and rare hackly fracture. Some fine gray laminae and streaks.
1652.5	1659.0	Oil shale and some marlstone: light to medium brownish gray (2.5Y 6/1 and 6/2-5/1 and 5/2, some 4/2). Faint to moderately distinct, smooth to slightly irregular and distorted laminations; some displacements and rare small loop structures. Regular to slightly irregular, thick to some thin shaly parting (common unctuous parting surfaces); irregular to some hackly fracture. Rare very fine gray laminae and streaks. Very rare black plant fragments on parting surfaces.
1659.0	1662.5	Oil shale and some marlstone: medium to light brownish gray (2.5Y and 10YR 4/2-6/2 and 6/1). Faint to very faint, fairly smooth to some very distorted and displaced laminations and streaked bedding. Regular to some irregular, thick to medium shaly parting; irregular fracture. Rare small gray discolored patches. Very rare very fine prismatic calcite stringers (or fracture fillings)--some with common pyrite. A very fine irregular fracture with black fillings and slightly discolored gray edges in middle part.
1662.5	1667.0	Oil shale and some marlstone: medium to light brownish gray (2.5Y 5/2 and 5/1-6/2 and 6/1, rare 4/2). Faint distorted and displaced to some smooth laminations. Slightly irregular to some very irregular, thick to medium shaly parting; irregular fracture. Rare fine short irregular vertical fractures with rust brown to colorless crystalline fillings (0.5 foot missing).
1667.0	1670.0	Marlstone and oil shale: buff to medium and rare dark brownish gray (2.5Y 7/2-5/2, some 4/2, rare 3/2). Distinct to some faint, slightly distorted and commonly displaced laminations to very distorted streaks and stringers. Slightly irregular thick to medium shaly parting; slightly irregular fracture. Rare fine short vertical fractures with brown bitumen-impregnated crystalline fillings.

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# LITHOLOGIC DESCRIPTION OF SAMPLES SUBMITTED FOR ASSAY

Core samples from Equity Oil Company's Oldland Corehole 3--Continued

From	To	Description
1678.0	1680.0	Oil shale: medium brownish gray and some tan (2.5Y and 10YR 5/2-4/2, some 6/3). Very faint to faint, distorted to some fairly smooth laminations, stringers, and streaks; common displacements and some fine loop structures. Irregular thick parting; irregular fracture. Rare irregular dense brownish gray dolomite stringers with short vertical fractures. Very rare small brown crystalline lenses.
1680.0	1684.9	Oil shale: medium brownish gray (2.5Y and 10YR 5/2-4/2). Very faint distorted and some contorted streaks and stringers. Irregular thick parting; irregular and rare hackly fracture. Some very irregular fine lacy black pyritic stringers in upper half. Sample of shale with fine black pyritic stringers from 1681.8 feet: X-ray - quartz, dolomite, feldspar (K and Na), dawsonite, pyrite.
1684.9	1689.0	Oil shale: medium brownish gray (2.5Y 4/1-5/1 and 5/2; some slight olive tint to almost neutral) and medium to rare dark brown (10YR 5/3-4/3, rare 3/3-2/2). Very faint to rare moderately distinct, fairly smooth to distorted laminations, stringers, and streaks; brown colors in 0.1- to 0.4-foot zones. Irregular to some slightly irregular thick parting; irregular hackly to some fairly smooth fracture. Rare fine black lacy stringers in upper part. Rare very fine disseminated crystals and crystalline streaks in some brown zones. Sample of oil shale with slight olive tint from 1686.7 feet: X-ray - quartz, feldspar (Na and K), dolomite, dawsonite, illite, pyrite. Sample of brown oil shale from 1687.3 feet: X-ray - dolomite, quartz, feldspar (K and Na); some dawsonite, illite.
1689.0	1690.0	Oil shale: medium brownish gray and rare brown (2.5Y 4/2-5/2, rare 5/3). Very faint distorted to smooth streaked bedding. Irregular to slightly irregular thick parting; irregular fracture. Rare very small buff earthy lenses.
1690.0	1699.0	Oil shale: medium to light brownish gray and some brown to tan (2.5Y 5/2-6/2, some 5/3-6/3). Very faint to some moderately distinct, distorted and displaced to some smooth laminations and streaked bedding; some small irregular loop structures. Irregular to slightly irregular thick parting; slightly irregular to irregular fracture. Very rare fine irregular black stringers. Very rare black plant fragments on parting surfaces.

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# LITHOLOGIC DESCRIPTION OF SAMPLES SUBMITTED FOR ASSAY

Core samples from Equity Oil Company's Oldland Corehole 3--Continued

From	To	Description
1711.1	1712.1	Oil shale: dark to medium brown and brownish gray (10YR and 2.5Y 3/3-4/3 and 4/2, rare 5/3). Very faint to rare distinct distorted streaks, stringers, and rare laminations. Irregular thick to medium parting; irregular and rare hackly fracture. Some fine buff earthy streaks.
1712.1	1715.0	Oil shale: medium to rare light brownish gray and brown (2.5Y 4/2-5/2 and 5/3, rare 6/2). Very faint to faint, fairly smooth to very irregular and distorted laminations, stringers, and streaks; common small loop structures and displacements. Irregular to some slightly irregular, thick to medium parting; irregular fracture. Rare small brown to tan crystalline lenses and streaks.
1715.0	1716.0	Oil shale: medium to dark brownish gray and brown (2.5Y and 10YR 4/2-3/2 and 3/3, rare 2/2). Faint to very faint, distorted to fairly smooth streaks and stringers; some fairly large irregular loop structures near top. Irregular thick parting; irregular to rare hackly fracture. Rare small to medium dense brown lenses.
1716.0	1717.4	Oil shale: dark brownish gray and brown to some brownish black (10YR 3/2 and 3/3-2/2, some 1/2); some very slight satiny luster. Very faint to faint distorted streaks, stringers, and rare laminations. Irregular to slightly irregular, thick to medium parting; irregular hackly fracture. Some thin dense brown dolomite stringers with short vertical bitumen-coated fractures in lower part.
Footage remeasured from 1717.0 to 1751.8 feet.		
1717.4	1718.4	Oil shale: medium to dark brownish gray and brown, rare brownish black (10YR and 2.5Y 5/2 and 5/3-3/2 and 3/3, rare 2/2-1/2). Faint to some distinct, slightly irregular and distorted laminations; common loop structures. Irregular thick to rare thin parting; irregular fracture. Some very small brown crystalline lenses near top.
1718.4	1722.5	Oil shale: medium brownish gray to rare brown and tan, rare dark brownish gray in upper and lower parts (2.5Y 5/2-4/2, rare 5/3-6/3 and 3/2). Moderately distinct to faint, distorted to fairly smooth laminations with common loop structures in upper and lower parts; distorted streaks and stringers in middle part. Irregular to slightly irregular, thick to medium parting; irregular and rare hackly fracture. Common small brown to buff lenses and streaks in upper part. A very irregular thin gray to yellowish gray, dense to silty-textured stringer with some fine shale stringers at 1721.9 feet.

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# LITHOLOGIC DESCRIPTION OF SAMPLES SUBMITTED FOR ASSAY

Core samples from Equity Oil Company's Oldland Corehole 3--Continued

From	To	Description
1737.6	1740.0	Oil shale: dark brownish gray to brownish black and rare dark brown (10YR 2/2-1/2, rare 3/2-3/3). Very faint fairly smooth streaked bedding. Slightly irregular to irregular, thick to medium parting; irregular to some coarse hackly fracture. An irregular diagonal glossy shear surface with slickensides near middle.
1740.0	1741.4	Oil shale: dark brownish gray (10YR 2/2-3/2). Very faint smooth streaked bedding. Regular to slightly irregular, thick to rare thin shaly parting; irregular to very hackly fracture. Very rare fine vitreous black organic streaks. A diagonal shear surface with slickensides at base.
1741.4	1744.4	Oil shale: dark and some medium brownish gray (10YR 3/2-2/2, some 4/2). Very faint smooth to distorted and displaced streaked bedding and some laminations. Regular to some irregular, thick to thin shaly parting; coarse to fine irregular hackly fracture. Some to common small brown pyritic spots and fine streaks. Rare 1-inch faintly laminated dolomite bands with short bitumen-stained fractures.
1744.0	1746.4	Oil shale: medium to dark brownish gray (10YR 4/2-3/2, some 2/2). Faint smooth to distorted laminations and streaked bedding. Regular to rare irregular, thick to medium shaly parting; irregular hackly fracture. Some thin to medium brownish gray dolomite bands with short vertical fractures in upper part. Some fine brown streaks with rare pyrite in lower part. Thin faintly streaked gray stringers at 1745.8 and 1746.3 feet.
1746.4	1748.5	Oil shale: medium to dark brownish gray (2.5Y 4/2-3/2, some 4/1 lower part). Faint to very faint slightly distorted laminations and some streaked bedding. Slightly irregular to some very irregular, thick to rare thin shaly parting; irregular fracture.
1748.5	1749.8	Oil shale: medium and rare dark brownish gray (2.5Y 5/2-4/2, rare 3/2). Faint fairly smooth to irregular, distorted and displaced laminations and some very faint streaked bedding. Regular to some irregular, thick to medium shaly parting; irregular fracture. Rare fine gray streaks and very small buff pyritic blebs in lower part.
1749.8	1759.0	Oil shale and marlstone: medium to light brownish gray and some buff (2.5Y 4/2 and 4/1-6/2 and 6/1, some 7/2-7/1). Faint to distinct irregular, distorted and commonly displaced to some smooth laminations; contorted zones at 1752.1-1752.3 and 1757.5-1757.7 feet. Regular

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# LITHOLOGIC DESCRIPTION OF SAMPLES SUBMITTED FOR ASSAY

Core samples from Equity Oil Company's Oldland Corehole 3--Continued

From	To	Description
1767.4	1770.0	Oil shale: dark to medium brownish gray (10YR 2/2-4/2 and 4/1). Very faint to faint smooth laminations. Very regular to slightly irregular, thick to medium shaly parting (unctuous parting surfaces); irregular fracture. Rare thin to medium massive gray to brownish gray bands. A very irregular diagonal glossy shear surface with slickensides at 1768.1 feet.
1770.0	1772.0	Oil shale: dark to medium brownish gray (10YR and 2.5Y 3/2-5/2 and 5/1) and some medium gray (4-5N). Faint smooth to irregular, distorted and displaced laminations. Very regular to slightly irregular, thick to thin shaly parting (unctuous parting surfaces); irregular and rare hackly fracture. Rare massive brown dolomite bands with short bitumen-coated fractures. A thin smooth light gray to buff band with very common fine disseminated pyrite at 1770.8 feet. Some irregular glossy shear surfaces with slickensides at 1771.3 feet. Sample of thin gray to buff pyritic band from 1770.8 feet: X-ray - pyrite, dawsonite, sanidine.
1772.0	1774.0	Oil shale and silicic marlstone: dark to medium brownish gray (10YR and 2.5Y 3/2-4/2, rare 5/2 and 5/1) and neutral gray (4-5N). Faint to fairly distinct irregular, distorted and displaced to fairly smooth laminations. Very regular to some irregular, medium shaly parting (some unctuous parting surfaces); irregular to slightly conchoidal fracture. Some thin to medium massive tan dolomite bands. Sample of gray silicic marlstone from 1773.6 feet: X-ray - quartz, dolomite; some illite, dawsonite, feldspar (K and Na), pyrite.
1774.0	1776.3	Oil shale: dark to medium brownish gray (10YR 3/2-4/2, some 5/2-5/1, rare 2/2) and rare medium gray (4-5N). Moderately distinct to faint, fairly smooth to irregular, distorted and displaced laminations. Regular to irregular, medium to thick parting; irregular fracture. Some thin brownish gray dolomite bands with short bitumen-coated fractures in lower part.
1776.3	1777.6	Oil shale: dark and rare medium brownish gray (10YR 3/2-3/1, rare 4/2-4/1). Very faint smooth to slightly distorted and displaced laminations. Slightly irregular thick to medium shaly parting; slightly irregular fracture. Some thin to medium massive brown dolomite bands with short bitumen-stained fractures. A brown to black woody plant fossil on parting surface near top.

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Core samples from Equity Oil Company's Oldland Corehole 3--Continued

From	To	Description
1787.6	1790.6	<p>streaks; rare loop structures. Slightly irregular to irregular, thick to medium parting (unctuous parting surfaces); slightly irregular to conchoidal fracture. Rare fine gray pyritic laminae and streaks.</p> <p>Marlstone and some oil shale: buff and tan to medium and rare dark brownish gray and brown (2.5Y 7/2 and 6/3-5/2 and 5/3, rare 4/3-3/2). Very faint to some moderately distinct, fairly smooth to very distorted streaks, stringers, and rare laminations. Slightly irregular to very irregular thick parting (unctuous parting surfaces); slightly conchoidal to some irregular fracture. Rare fine lacy dull black pyritic stringers and very fine streaks. Sharp irregular interfingering contact with dark shale below.</p> <p>Sample of very faintly bedded light brownish gray marlstone from 1788.9 feet:</p> <p>X-ray - dolomite, quartz; some illite, calcite, feldspar (Na and K).</p>
1790.6	1792.5	<p>Oil shale: dark brown and brownish gray (2.5Y and 10YR 3/3-3/2, some 2/2). Very faint distorted streaks and stringers. Regular to irregular, thick to medium parting; irregular and rare hackly fracture. Rare thin to fine dull gritty black streaks and blebs--some with limonite stains.</p>
1792.5	1795.2	<p>Oil shale and marlstone: medium to light brownish gray, some dark brownish gray in upper part (2.5Y 5/2-6/2, some 4/2-3/2). Faint to <u>very</u> faint, distorted to fairly smooth streaks and stringers. Irregular to some slightly irregular thick parting; irregular to slightly conchoidal fracture. Rare fine dull black pyritic stringers, streaks, and flecks.</p>
1795.2	1795.9	<p>Oil shale: dark to medium brownish gray (2.5Y and 10YR 3/2-5/2). Moderately distinct to faint distorted streaks and stringers. Irregular thick to medium parting; irregular fracture. Some thin to fine irregular dull black pyritic stringers.</p> <p>Sample of dull black stringer with very fine crystals from 1795.6 feet:</p> <p>X-ray - pyrite; trace quartz, dolomite.</p>
1795.9	1798.0	<p>Oil shale: dark brownish gray, some medium brown in upper part (10YR 2/2-3/2, some 4/3-5/3 upper part). Faint to very faint distorted streaks and stringers. Irregular thick parting; irregular fracture. Rare fine black stringers with very fine disseminated</p>

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# LITHOLOGIC DESCRIPTION OF SAMPLES SUBMITTED FOR ASSAY

Core samples from Equity Oil Company's Oldland Corehole 3--Continued

From	To	Description
		irregular fracture. Rare small to fine irregular brown crystalline masses and streaks. A thin dense massive brown dolomite band with short bitumen-stained fractures at 1809.0.
1809.5	1812.0	Oil shale: medium brownish gray and some brown to rare tan (2.5Y and 10YR 4/2-5/2, some 4/3-5/3, rare 6/3; some almost olive gray). Faint to some moderately distinct distorted laminations, stringers, and streaks; common irregular loop structures and displacements. Slightly irregular to very irregular, thick to medium parting; irregular fracture. Some fine buff earthy streaks and spots.
1812.0	1813.2	Oil shale: medium to dark brownish gray and some brown (2.5Y and 10YR 4/2-3/2, some 4/3-5/3, rare 3/1). Faint distorted laminations, stringers, and streaks; some irregular loop structures. Irregular thick to medium parting; irregular fracture. Some fine lacy black stringers at 1812.7 feet.
1813.2	1814.2	Oil shale: medium to dark brown and rare dark brownish gray (10YR 4/3-3/3, rare 3/2-2/2). Very faint distorted streaks, stringers, and laminations. Irregular to slightly irregular thick parting; irregular to slightly conchoidal fracture. Some fine lacy black stringers in upper part.
1814.2	1815.3	Oil shale: medium to rare dark brownish gray and brown (2.5Y and 10YR 5/2-4/2, rare 5/3-3/3 and 3/2). Faint fairly smooth to distorted laminations, stringers, and streaks; very common small displacements and some irregular loop structures. Irregular thick to medium parting; slightly irregular to slightly conchoidal fracture. Some fine buff streaks and small blebs.
1815.3	1818.5	Oil shale: medium to dark brownish gray and some brown (2.5Y 5/2 and 5/1-3/2, some 5/3-4/3). Faint to moderately distinct, slightly distorted to very distorted and displaced laminations, stringers, and streaks. Irregular to some slightly irregular thick parting; irregular to slightly conchoidal fracture. Some to rare fine buff to tan, earthy to silty streaks and irregular blebs.
1818.5	1819.5	Oil shale: medium to dark brown and rare brownish gray (10YR and 2.5Y 4/3-3/3, rare 5/2). Moderately distinct. irregular and distorted to contorted and displaced laminations; double fold (S-shaped) with axes through 1819.0 and 1819.2 feet. Irregular thick parting;

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# LITHOLOGIC DESCRIPTION OF SAMPLES SUBMITTED FOR ASSAY

Core samples from Equity Oil Company's Oldland Corehole 3--Continued

From	To	Description
1835.2	1838.2	Oil shale: dark brownish gray and brown to some brownish black (10YR 3/2 and 3/3-2/2, some 1/2); some very slight satiny luster. Faint to very faint very distorted streaks and stringers. Very irregular to rare slightly irregular thick parting; irregular fracture. Some to common very small buff to tan earthy blebs. Rare small brownish black cherty lenses. Sample of brownish black satiny oil shale from 1836.6 feet: X-ray - quartz, illite; some dolomite, Na-feldspar, pyrite.
1838.2	1840.2	Oil shale: dark brownish gray (10YR 2/2-3/2). Very faint very smooth laminations and streaked bedding. Slightly irregular to very regular, thick to rare thin shaly parting; irregular to slight hackly and some fairly smooth fracture. Common very fine buff streaks. Sample of shale with very fine buff streaks from 1839.1 feet: X-ray - quartz, illite; some dolomite, feldspar (K and Na), pyrite.
1840.2	1844.2	Oil shale: dark brownish gray, some brownish black in lower part (10YR 3/2-2/2, some 1/2). Very faint very smooth to some slightly distorted laminations and streaked bedding. Very regular to some irregular, thick to thin shaly parting; irregular to hackly fracture. Some fine buff streaks in upper part. Some <u>very</u> fine disseminated crystals in lower part. A thin massive dark brownish gray dolomite band with short bitumen-coated vertical fractures near base.
1844.2	1845.3	Oil shale: medium to dark brownish gray and brown, rare buff and brownish black (10YR 4/2 and 4/3-3/3, rare 5/2-7/2 and 2/2-1/2). Faint to some moderately distinct, very irregular and distorted laminations; common very irregular loop structures and displacements. Regular to slightly irregular thick shaly parting; slightly irregular fracture.
1845.3	1846.3	Oil shale: dark and rare medium brownish gray and brown to some brownish black (10YR 3/2 and 3/3-2/2, some 1/2, rare 4/2-4/3); some satiny to rare resinous luster. Moderately distinct to faint, distorted to contorted laminations and stringers; some very irregular small to large loop structures. Slightly irregular to very irregular, thick to medium parting; slightly irregular to some very irregular hackly fracture.

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# LITHOLOGIC DESCRIPTION OF SAMPLES SUBMITTED FOR ASSAY

Core samples from Equity Oil Company's Oldland Corehole 3--Continued

From	To	Description
1859.9	1866.0	Oil shale: medium to dark brownish gray (2.5Y 4/1 and 4/2-3/2, rare 5/1 and 5/2; some almost olive gray). Very faint to faint, smooth to slightly irregular and distorted laminations. Very regular to some very irregular, medium to thin shaly parting (unctuous parting surfaces); irregular to some very hackly fracture. Some gray laminae and streaks. Some irregular glossy shear surfaces with slickensides.
1866.0	1867.0	Oil shale: medium to dark and rare light brownish gray (2.5Y 4/2-3/2, rare 5/2-6/2). Very faint to rare distinct, smooth to slightly irregular, distorted and displaced laminations. Regular to some irregular, medium and rare thin shaly parting (some unctuous); slightly irregular fracture. Some thin massive dolomite bands with short bitumen-coated fractures.
1867.0	1868.0	Oil shale: dark brownish gray (2.5Y 3/2-2/2). Very faint smooth to slightly distorted laminations and streaked bedding. Regular to some irregular, thick to medium shaly parting; slightly irregular fracture.
1868.0	1872.2	Oil shale: medium to dark brownish gray and some brown to rare tan (2.5Y 5/2-3/2, some 4/3-5/3, rare 6/3); rare resinous luster in upper part. Very faint to faint distorted laminations, stringers, and streaks; some very irregular loop structures. Irregular thick parting; slightly conchoidal to irregular fracture. A thin irregular waxy black organic stringer at 1869.8 feet. Some small irregular buff to brown patches in lower part.
1872.2	1876.0	Oil shale: dark brownish gray and brown, rare brownish black in upper part (10YR 3/2 and 3/3-2/2, rare 1/2). Very faint distorted to fairly smooth streaked bedding. Irregular to some slightly irregular thick parting; slightly irregular fracture. Some small brownish gray to buff, silty to fine granular lenses and blebs. Very rare small irregular black cherty lenses.
1876.0	1877.4	Oil shale: medium to dark brownish gray and brown, some tan in upper part (10YR 5/2-3/2 and 3/3, some 6/2-6/3, rare 2/2). Moderately distinct to faint, distorted and commonly displaced laminations. Very irregular to slightly irregular thick parting; irregular to slightly conchoidal fracture. Rare small dark brown to black, glassy to cherty lenses. Some small irregular tan to brown, earthy to silty blebs and streaks in lower part.

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# LITHOLOGIC DESCRIPTION OF SAMPLES SUBMITTED FOR ASSAY

Core samples from Equity Oil Company's Oldland Corehole 3--Continued

From	To	Description
1889.7	1891.2	Oil shale: medium to dark brownish gray (10YR 5/2-3/2, rare 2/2). Faint to fairly distinct irregular distorted laminations and some bands. Slightly irregular to very irregular, thick to medium parting; irregular to fairly smooth fracture. Some short vertical fractures in lighter colored bands. Rare small to fine tan earthy to black glassy lenses.
Footage remeasured from 1892.8 to 1919.8 feet.		
1891.2	1894.4	Oil shale and dolomite: dark brownish gray to brownish black oil shale and medium brownish gray dolomite (10YR 3/2-1/2 and 5/2-5/1). Very faint smooth to some distorted laminations in oil shale with common distinct lighter dolomite laminae and bands. Very irregular to rare regular, thick to thin parting; irregular to some hackly fracture. Very common short vertical fractures with fine buff radiating silky spots and bitumen coatings. Common thin to fine irregular brownish gray to black dense stringers and streaks. Sample of scrapings from fractures with radiating silky spots from 1894.0 to 1894.4 feet: X-ray - dawsonite, dolomite; some quartz, Na-feldspar.
1894.4	1895.4	Oil shale: dark brownish gray and rare brownish black (10YR 3/2 and 3/1-2/2, rare 1/2). Very faint smooth laminations. Regular to some irregular, thick to thin shaly parting; very hackly fracture. Common thin to fine dense brown to black pyritic stringers and streaks in upper part.
1895.4	1899.6	Oil shale: dark brownish gray (10YR and 2.5Y 3/2 and 3/1-2/2). Faint to very faint smooth laminations; rare fine loop structures and displacements. Irregular thin to rare thick shaly parting (common unctuous parting surfaces); slightly irregular to very hackly fracture. Some neutral gray laminae--especially in upper and lower parts.
Blue marker at about 1900 feet on electric log.		
1899.6	1900.7	Oil shale: dark brownish gray and brown to some brownish black (10YR 3/2 and 3/3-2/2, some 1/2). Very faint to faint, smooth to irregular distorted laminations. Regular to irregular, thin to thick shaly parting; hackly to irregular fracture. Some thin to medium, tan to brownish gray dolomite stringers and bands in lower part.

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# LITHOLOGIC DESCRIPTION OF SAMPLES SUBMITTED FOR ASSAY

Core samples from Equity Oil Company's Oldland Corehole 3--Continued

From	To	Description
		bedding in oil shale; distinct medium to thick dolomite bands with very distorted and displaced internal laminations. Very irregular to slightly irregular, thick to some thin parting (some very unctuous parting surfaces); irregular to hackly fracture. Common irregular natural fractures in dolomite bands with some buff silky spots (like 1894.0 feet).
		Sample of brownish gray to tan dolomite band from 1909.2 feet:
		X-ray - dolomite; some quartz, feldspar (Na and K).
1910.0	1911.5	Oil shale: dark brownish gray to brownish black (10YR 2/2-1/2, rare 3/2-3/1). <u>Very</u> faint slightly distorted to very smooth laminations and streaked bedding. Regular to some very irregular, thick to rare thin shaly parting; slightly irregular to very irregular hackly fracture. Rare very fine vitreous black streaks. Very rare very small black cherty blebs. Very rare fish bones.
1911.5	1912.6	Dolomite and oil shale: brownish gray to tan dolomite (10YR 4/2-6/2 and 6/3) and dark brownish gray to brownish black oil shale (10YR 3/2-1/2). Distinct thin to thick laminae and bands of dolomite with very distorted and broken laminations and stringers; thin to medium laminae and bands of oil shale with <u>very</u> faint smooth to distorted streaked bedding. Regular to very irregular, thick to medium parting; irregular fracture. Some natural fractures with buff silky spots and rare bitumen stains.
1912.6	1913.7	Oil shale: medium brownish gray and brown to brownish black (10YR and 2.5Y 4/2 and 4/3-1/2). Very faint to rare moderately distinct, smooth to distorted laminations and streaked bedding; rare irregular loop structures. Regular to very irregular, medium to thin parting; hackly to irregular fracture. Some fine brown crystalline streaks and blebs in lower part.
1913.7	1918.0	Oil shale: dark and rare medium brownish gray (2.5Y 3/2-2/2, rare 3/1-5/1). <u>Very</u> faint to faint, smooth to slightly distorted and displaced laminations. Slightly irregular to very irregular, medium to thin parting (very unctuous parting surfaces); irregular to hackly fracture. Some black fish bones on parting surfaces in upper part. Some neutral gray laminae in lower part. A thin dense buff dolomite band and a thin dense to slightly prismatic brown to gray calcite band in lower part. Very badly broken up; true length doubtful.

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# LITHOLOGIC DESCRIPTION OF SAMPLES SUBMITTED FOR ASSAY

Core samples from Equity Oil Company's Oldland Corehole 3--Continued

From	To	Description
		conchoidal fracture. Rare brownish gray to buff dolomite bands. Very rare irregular glossy shear surfaces. Very badly broken up and mixed up; true length doubtful.
1933.7	1946.0	Silicic marlstone: medium to dark gray (4-3N) and some medium to dark brownish gray (2.5Y 4/2 and 4/1-2/2). Moderately distinct to faint, smooth to some distorted laminations and bands. Rare brownish gray to buff dolomite bands. <u>Very</u> badly shattered and mixed up; true length very doubtful.
1946.0	1955.0	Silicic marlstone: dark to medium gray (3-4N) and some dark brownish gray (2.5Y 3/1 and 3/2-2/2). Faint very smooth laminations and some bands. Regular to some very irregular, thick to thin parting (unctuous); conchoidal to irregular fracture. Very rare thin dense light brownish gray dolomite bands. Lower part very badly broken up and mixed up; true length doubtful. Sample of gray silicic marlstone from 1946.4 feet: X-ray - illite, quartz; some dolomite, calcite, feldspar (K and Na), pyrite.
1955.0	1964.0	Silicic marlstone: dark to medium gray (3-4N, rare 5N), and some dark to medium brownish gray (2.5Y 2/2-4/2 and 4/1). Faint to rare moderately distinct very smooth laminations. Regular to very irregular, medium to thin parting (unctuous); very irregular to conchoidal fracture. A thick contorted and broken dense brownish gray dolomite band at 1956.8 feet; a thick smooth dense light brownish gray dolomite band at 1958.0 feet. Lower part very badly shattered and mixed up; true length very doubtful. Sample of dense massive dolomite band from 1958.0 feet: X-ray - dolomite.
1964.0	1966.0	Oil shale and silicic marlstone: dark to medium brownish gray (2.5Y 2/2-4/2 and 4/1) and medium to light gray (4-6N). Faint smooth to some slightly distorted and displaced laminations and rare bands. Very irregular to some regular, medium to thin parting (unctuous); very irregular to hackly fracture. Rare glossy shear surfaces with slickensides. Very rare fine irregular pyrite stringers.

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# LITHOLOGIC DESCRIPTION OF SAMPLES SUBMITTED FOR ASSAY

Core samples from Equity Oil Company's Oldland Corehole 3--Continued

From	To	Description
1975.4	1977.1	Oil shale: dark to medium brownish gray (2.5Y 3/2-4/2 and 4/1, rare 10YR 5/2-5/3). Very faint to faint, smooth and rare distorted laminations. Regular to very irregular, medium to thin parting (unctuous); irregular to hackly fracture. Some gray laminae. A 3/4-inch dense brownish gray fractured dolomite band in lower part.
1977.1	1978.5	Oil shale and marlstone: dark to some medium brownish gray oil shale (2.5Y and 10YR 2/1-3/2, some 4/2-5/2) and medium to light brownish gray marlstone (10YR 5/2-6/2). Very faint to some distinct irregular, distorted and displaced to fairly smooth laminations, stringers, and streaks in oil shale; some thick faintly laminated to massive fractured marlstone bands. Irregular to slightly irregular, thick to very thin parting (unctuous); irregular to hackly fracture. Rare very thin irregular gray stringers.
1978.5	1979.5	Oil shale: dark brownish gray (10YR 2/2-3/2). Faint slightly irregular and distorted to smooth laminations. Regular to some irregular, thin to thick shaly parting (some unctuous); hackly to slightly irregular fracture. Rare thin to fine dense dark brown crystalline stringers. Some very fine pyrite streaks in lower part. A thin dark brownish gray dolomite band with some short bitumen-coated vertical fractures at 1979.2 feet. Sample of normal dark brownish gray oil shale from 1978.8 feet: X-ray - illite, quartz; some Na-feldspar, dolomite, pyrite.
1979.5	1980.5	Oil shale: dark brownish gray (10YR and 2.5Y 2/2-3/2 and 3/1). Faint very smooth laminations. Very regular to some irregular, medium to very thin shaly parting (some slightly unctuous); slight hackly to fairly smooth fracture. Some very fine silty-textured pyrite streaks and blebs. Very rare glossy shear surfaces with slicken-sides.
1980.5	1982.0	Oil shale: dark to medium brownish gray (2.5Y 3/2 and 3/1-4/2 and 4/1; some very slight olive tint); dark brown to tan in lower 0.3 foot (10YR 3/3-6/3). Faint very smooth laminations in upper part; distinct laminations with common loop structures and displacements in lower 0.3 foot. Very regular to some irregular, thin to rare thick shaly parting; slight hackly to irregular fracture. Some gray laminae and thin bands in upper part. Rare fine pyrite streaks. Some short vertical fractures in lower part.

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# LITHOLOGIC DESCRIPTION OF SAMPLES SUBMITTED FOR ASSAY

Core samples from Equity Oil Company's Oldland Corehole 3--Continued

From	To	Description
		thin parting; irregular fracture. Common small buff to white radiating silky spots and some prismatic calcite in fractures.
1994.4	1995.4	Oil shale: dark and rare medium brownish gray (10YR 3/2-2/2, rare 4/2). Faint to very faint smooth laminations. Regular to some irregular, medium to thin shaly parting (some unctuous); irregular fracture.
1995.4	1998.0	Oil shale: dark brownish gray to brownish black (2.5Y 2/2-1/2, rare 3/2). <u>Very</u> faint very smooth laminations. Very regular to very irregular, thick to medium shaly parting; slight hackly to slightly conchoidal fracture. Rare very fine pyrite streaks and very rare thin irregular dense brownish black cherty stringers in upper part. Very rare very fine buff earthy laminae in lower part.
1998.0	2003.0	Oil shale: dark to rare medium brownish gray and brownish black (10YR and 2.5Y 3/2 and 3/1-2/2, rare 4/2-5/2 and 1/2). Very faint to faint very smooth laminations. Very regular to some irregular, thick to thin shaly parting (some slightly unctuous); slightly conchoidal to rare hackly fracture. A very thin smooth very pyritic dark olive gray band at 1999.2 feet.
2003.0	2004.0	Oil shale: dark brownish gray to brownish black (2.5Y 3/2 and 3/1-1/2). Faint very smooth laminations. Regular to some very irregular, medium to thin shaly parting; slightly conchoidal to hackly fracture.
2004.0	2005.0	Oil shale: brownish black to dark brownish gray (2.5Y 1/2-2/2, rare 3/2-3/1). Very faint very slightly distorted and displaced to smooth laminations. Slightly irregular to very regular, medium to very thin shaly parting; hackly to slightly conchoidal fracture. Some fossil fragments (bone fragments and rare scales).
2005.0	2006.2	Oil shale: dark brownish gray to some brownish black (2.5Y and 10YR 2/2-3/1 and 3/2, some 1/2). Faint smooth to very slightly distorted laminations; some fine loop structures and displacements. Regular to slightly irregular, thin to thick shaly parting; slightly irregular to rare very hackly fracture. Rare very fine pyrite streaks and blebs near base.
2006.2	2008.2	Oil shale and marlstone: medium to dark brownish gray and some brownish black oil shale (10YR 4/2-2/2, some 1/2), medium to light brownish gray and tan marlstone (10YR 5/2-6/2 and 6/3). Faint to moderately distinct,

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# LITHOLOGIC DESCRIPTION OF SAMPLES SUBMITTED FOR ASSAY

Core samples from Equity Oil Company's Oldland Corehole 3--Continued

From	To	Description
2016.5	2021.0	Oil shale: dark to some medium brownish gray (2.5Y 2/2-3/2 and 3/1, some 4/2-4/1). Very faint to some moderately distinct, smooth to irregular, distorted and displaced laminations. Regular to very irregular, thick to very thin parting (some unctuous); very hackly to very irregular fracture. Common dense brownish gray dolomite laminae and thin bands with short vertical fractures--some with resinous brown coatings and radiating silky spots. Common irregular glossy shear surfaces with slickensides. Sample of interlaminated oil shale and dense dolomite from 2017.6 feet: X-ray - dolomite; some quartz, illite, pyrite.
2021.0	2025.0	Oil shale: brownish black to some medium brownish gray and brown (2.5Y and 10YR 1/2-3/2, some 3/3-4/2 and 4/3). Very faint to some moderately distinct, smooth to irregular distorted laminations and some <u>very</u> faint streaked bedding. Regular to very irregular, very thin to rare thick parting; very hackly to very irregular and rare fairly smooth fracture. Some thin to rare thick dense, massive to faintly laminated brownish gray fractured dolomite bands. Rare very fine silty-textured pyrite streaks and small blebs near base.
2025.0	2027.6	Oil shale: brownish black to dark brownish gray (10YR 1/2-2/2); some very slight satiny luster. <u>Very</u> faint very smooth to some slightly distorted and broadly curved laminations and streaked bedding. Very regular and some smoothly curved to rare very irregular, thick to thin shaly parting; very hackly to irregular and rare fairly smooth fracture. Very rare fine pyrite streaks and blebs. Some thin to thick (up to 2-1/2 inches) irregular very dense dark brownish gray dolomite bands with resinous to vitreous black bitumen-coated fractures in lower part. Sample of very thick dense dolomite band from 2027.5 feet: X-ray - dolomite.
2027.6	2029.6	Oil shale: brownish black to dark brownish gray and brown (10YR 1/2-3/2 and 3/3). Very faint slightly distorted laminations and streaked bedding; some loop structures. Very regular to some irregular, medium to

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# LITHOLOGIC DESCRIPTION OF SAMPLES SUBMITTED FOR ASSAY

Core samples from Equity Oil Company's Oldland Corehole 3--Continued

From	To	Description
2040.1	2041.7	Oil shale: brownish black to dark brownish gray (10YR and 2.5Y 1/2-2/2, rare 3/2); some very slight satiny luster. Very faint smooth to some distorted laminations and streaked bedding. Very regular to some irregular, medium to thick shaly parting; slightly irregular to very hackly fracture. Some very fine dark brownish gray pyritic streaks and stringers. Very rare thin vitreous black organic streaks.
2041.7	2043.9	Oil shale: dark to some medium brownish gray and brownish black (10YR 3/2-2/2, some 4/2 and 1/2); rare satiny luster. Very faint to faint, smooth to irregular, distorted and displaced laminations, streaked bedding, and some bands. Irregular to regular, thick to very thin parting; conchoidal to irregular and some hackly fracture. Some very irregular fine bitumen-stained fractures in lower part.
2043.9	2046.2	Oil shale: dark brownish gray and some brownish black (10YR and 2.5Y 2/2-3/2, some 1/2 upper part). Very faint smooth laminations and streaked bedding. Very regular to slightly irregular, very thin to medium shaly parting; hackly to slightly conchoidal fracture. A thin tan to brownish gray silty stringer at 2044.3 feet.
2046.2	2050.0	Oil shale: dark brownish gray (2.5Y 2/2-3/2). Very faint smooth and rare distorted laminations and streaked bedding. Regular to some irregular, thick to rare thin shaly parting; irregular hackly to some fairly smooth fracture. Rare gray laminae and thin bands. Brown to tan (2.5Y 4/3-6/4) dolomite in upper 0.3 foot. Some fine pebbly parting surfaces (ostracods?). Sample of dolomite from 2046.3 feet: X-ray - dolomite.
2050.0	2052.0	Oil shale: dark to medium brownish gray (10YR and 2.5Y 3/2-4/2, some 2/2). Very faint smooth laminations and streaked bedding. Regular to rare irregular thick to medium shaly parting; irregular to very slight fine hackly fracture. Very common ostracods on parting surfaces. Some thin prismatic calcite streaks and fracture fillings--especially in upper part.
2052.0	2054.1	Oil shale: brownish black to dark brownish gray (10YR 1/2-3/2), some dark to medium brown (10YR 3/3-5/3) at 2053.1 to 2053.3 feet. Very faint and rare moderately distinct, smooth to slightly irregular, distorted and

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Core samples from Equity Oil Company's Oldland Corehole 3--Continued

From	To	Description
		some irregular, thick to rare thin parting; slightly irregular to hackly fracture. Rare fine pyrite streaks and blebs. Rare irregular glossy shear surfaces in lower part.
2069.2	2070.6	Oil shale: dark to medium brownish gray and brown (10YR 3/2 and 3/3-4/2, rare 2/2); some resinous to waxy streaks near top. Very faint slightly distorted to smooth laminations and streaked bedding; rare small loop structures. Slightly irregular to irregular, thick to medium parting; irregular to conchoidal fracture. Some thin black streaks with fine columnar pyrite seams and fine adamantine crystals in lower part.
2070.6	2073.7	Oil shale: dark brownish gray and some brownish black (10YR 3/2-2/2, some 1/2), some resinous to waxy luster in middle part. Very faint smooth to some distorted laminations and streaked bedding; common small to fairly large loop structures in middle part. Regular to some irregular, thick to thin shaly and rare papery parting, very hackly to slight hackly fracture. Some very fine brown crystalline streaks and stringers. Very rare thin black streaks and stringers--one near top with columnar pyrite. Middle part is very elastic and tough.
2073.7	2076.0	Oil shale: dark brownish gray, rare brownish black near top (10YR and 2.5Y 2/2-3/2, rare 1/2). Very faint distorted to smooth laminations and streaked bedding; some small loop structures near top. Regular to very irregular, medium to thin parting (some unctuous parting surfaces); irregular to very hackly fracture. A very irregular 3/4- to 1-1/2-inch pale yellowish-buff to brownish gray, earthy to fine sandy-textured stringer at top (some fine stringers in shale above and below). A 0.3-foot faintly bedded to dense massive dark brownish gray dolomite band at 2074.8 to 2075.1 feet (some irregular fractures with white radiating silky spots like 1894.0 feet). Sample of brownish gray silty to sandy material from irregular stringer from 2073.7 feet: X-ray - dolomite, mixed layer clay, some dawsonite. Sample of yellowish buff earthy material from irregular stringer from 2073.8 feet: X-ray - mixed layer clay.

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# LITHOLOGIC DESCRIPTION OF SAMPLES SUBMITTED FOR ASSAY

Core samples from Equity Oil Company's Oldland Corehole 3--Continued

From	To	Description
2096.5	2098.0	Oil shale: brownish black to dark brownish gray (10YR 1/2-3/2 and 3/1). Very faint to faint smooth to slightly distorted laminations and some streaked bedding. Very regular to some irregular, medium to thin shaly parting; slightly irregular to hackly fracture. Some fine gray laminae and rare thin brownish gray to tan dolomite bands in lower part.
2098.0	2102.8	Oil shale: dark to medium brownish gray and rare brownish black (10YR 2/2-5/2 and 5/1, rare 1/2). Very faint to some distinct, slightly distorted and displaced to smooth laminations and streaked bedding. Regular to very irregular, thick to thin parting; hackly to very irregular fracture. Common brownish gray to tan dolomite laminae and thin bands with short vertical fractures in upper part. Lower part very badly broken up and mixed up; true length doubtful.
2102.8	2223.0	Missing.
2223.0	2225.0	Oil shale: brownish black to dark brownish gray (10YR 1/2-2/2, some 2/1). <u>Very</u> faint smooth to some slightly distorted streaked bedding. Regular to some irregular, thick to thin shaly parting; coarse hackly fracture. Rare thin dense dark brownish gray dolomite stringers and lenses. Sample of brownish black oil shale from 2223.2 feet: X-ray - illite, quartz; some ferroan, Na-feldspar, dolomite.
Orange marker at about 2225 feet on electric log.		
2225.0	2228.0	Oil shale: dark brownish gray (10YR 2/2-3/2). Very faint distorted streaked bedding. Slightly irregular to very irregular, thick to medium and rare thin parting; irregular hackly to some smooth fracture. Very rare very small brown crystalline blebs. Some irregular fractures with silty-textured pyrite crusts in upper part.
2228.0	2231.0	Oil shale: brownish black to dark brownish gray (10YR 1/2-2/2). <u>Very</u> faint smooth to some distorted streaked bedding. Regular to some very irregular, thick to thin shaly parting; irregular coarse hackly fracture. Some very fine pyrite blebs in lower part. Rare very glossy shear surfaces with slickensides. Lower part badly broken up; true length doubtful.
2231.0	2243.0	Mudstone (?): dark to medium brownish gray (2.5Y 3/1-4/1; some almost neutral gray). Very faintly bedded to massive. Very irregular to some very regular, thick to thin parting; irregular to very conchoidal fracture. Rare black plant fossils on parting surfaces. Very badly broken up and mixed up; true length very doubtful.

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# LITHOLOGIC DESCRIPTION OF SAMPLES SUBMITTED FOR ASSAY

Core samples from Equity Oil Company's Oldland Corehole 3--Continued

From	To	Description
2288.5	2290.5	Oil shale: brownish black and some dark brownish gray (10YR 1/2, some 2/2); common satiny luster. <u>Very</u> faint smooth streaked bedding. Slightly irregular to irregular, thick to medium parting; irregular to hackly fracture.
2290.5	2293.0	Oil shale: dark brownish gray to brownish black (10YR 2/2-1/2). <u>Very</u> faint very distorted to smooth streaked bedding. Very irregular to some slightly irregular, thick to medium parting; very irregular to coarse hackly fracture. Some very irregular to vermiform fine pyrite stringers and rare bitumen coated fractures in upper half. Some parts badly broken up and mixed up; true length doubtful.
2293.0	2295.0	Oil shale: dark to some medium brownish gray (10YR 2/2-3/2, some 4/2 lower part). <u>Very</u> faint smooth streaked bedding. Irregular thick to medium parting; irregular fracture. Rare fine brownish gray silty-textured crystalline streaks in lower part.
2295.0	2299.0	Oil shale: dark brownish gray and some brownish black (10YR 2/2, some 1/2). <u>Very</u> faint smooth and some slightly distorted streaked bedding. Regular to some irregular, thick to rare thin shaly parting; irregular to hackly fracture. Some very thin irregular to vermiform olive gray pyritic stringers. Rare thin dark olive gray to brownish gray silty-textured crystalline stringers. Sample of oil shale with silty-textured stringers from 2297.2 feet: X-ray - analcite, quartz, Na-feldspar, pyrite, dolomite, ferroan? Sample of dark brownish gray to brownish black oil shale with thick parting and irregular fracture from 2297.7 feet: X-ray - illite, quartz, dolomite, Na-feldspar, ferroan.
2299.0	2301.0	Oil shale: dark brownish gray (10YR and 2.5Y 2/2). <u>Very</u> faint smooth streaked bedding. Slightly irregular to very irregular, very thin to rare medium shaly parting; very hackly fracture. Some very irregular fine olive gray silty-textured pyrite stringers near top. Sample of oil shale with very thin parting and hackly fracture from 2300.9 feet: X-ray - illite, quartz; some dolomite, ferroan, feldspar.

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# LITHOLOGIC DESCRIPTION OF SAMPLES SUBMITTED FOR ASSAY

Core samples from Equity Oil Company's Oldland Corehole 3--Continued

From	To	Description
2313.0	2314.0	Oil shale: dark brownish gray (10YR 2/2 and 2/1-3/2). Very faint smooth to distorted laminations and streaked bedding. Very irregular medium to thick parting; irregular to conchoidal fracture. Some thin to medium dense brownish gray dolomite stringers and bands. Some very glossy shear surfaces.
2314.0	2315.5	Oil shale: dark brownish gray (10YR 3/2-3/1). <u>Very</u> faint smooth streaked bedding. Regular to irregular, thin to some medium shaly parting; irregular to hackly fracture. Some very small waxy black organic lenses near base.
2315.5	2317.0	Oil shale: dark brownish gray (10YR 3/2 and 3/1-2/2 and 2/1). Very faint distorted to some smooth streaked bedding. Very irregular to some regular, thick to thin parting; very irregular to some hackly fracture. Some thick dense medium to dark brownish gray dolomite bands. Rare glossy shear surfaces. A very irregular thick dark olive gray to neutral gray, silty to dense band with contorted oil shale stringers and some very fine pyrite at base (strong oil stains on outside of core). Sample of dense gray material with some oil shale from 2316.9 feet: X-ray - quartz, analcite; some ferroan, Na-feldspar.
2317.0	2317.8	Oil shale: dark brownish gray (10YR and 2.5Y 3/1-3/2). <u>Very</u> faint distorted to smooth streaked bedding. Irregular to regular, thick to very thin parting; irregular to very hackly fracture.
2317.8	2319.0	Oil shale: dark and rare medium brownish gray (10YR 2/2-3/2, rare 4/2). Very faint smooth and some distorted streaked bedding. Irregular to slightly irregular, thick to rare thin parting; irregular fracture. A very distinct thin irregular yellow-buff (2.5Y 7/3-8/3) silty-textured stringer at 2318.5 feet with some fine brownish gray stringers extending into shale below. Some very small dull black organic lenses near base. Most of section is very dense and heavy. Sample of yellow-buff stringer from 2318.5 feet: X-ray - ferroan, mixed layer clay; some feldspar (Na and K), kaolin.. Sample of dense heavy oil shale from 2318.8 feet: X-ray - dolomite, quartz; some illite, feldspar, pyrite.

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# LITHOLOGIC DESCRIPTION OF SAMPLES SUBMITTED FOR ASSAY

Core samples from Equity Oil Company's Oldland Corehole 3--Continued

From	To	Description
2337.8	2340.4	Oil shale: dark brownish gray (10YR and 2.5Y 3/2 and 3/1-2/2). Very faint smooth to slightly distorted streaked bedding. Slightly irregular to very irregular very thin to some thick parting; sharp hackly to very irregular fracture. Some black fossil fragments on parting surfaces near top (fish ribs and spines?). Some very irregular glossy shear surfaces with very distinct slickensides. Some thick dense massive gray to brownish gray dolomite bands in lower part. Some parts badly broken up and probably mixed up; true length doubtful.
2340.4	2346.0	Oil shale: medium to dark brownish gray (2.5Y 4/1-3/1 and 3/2; some almost neutral). Very faint distorted to smooth streaked bedding. Slightly irregular to very irregular, very thin to medium parting (some very unctuous); very irregular to very hackly fracture. Some black fossil fragments on parting surfaces. Some very irregular fine gray silty stringers at about 2341.5 feet. A thick dense massive brownish gray dolomite band at 2342.4 feet. Very badly broken up and mixed up (especially lower part); true length very doubtful.
2346.0	2347.0	Oil shale: medium to dark brownish gray (10YR 4/1-2/1 and 2/2). Very faint smooth to slightly distorted streaked bedding. Regular to slightly irregular, medium to thin shaly parting; irregular to slight hackly fracture. Some fossil fragments on parting surfaces.
2347.0	2348.0	Oil shale: dark brownish gray to brownish black (10YR 2/1-1/1; almost neutral). Very faint smooth to slightly distorted streaked bedding. Very regular to slightly irregular, thin to rare thick shaly parting; slightly irregular to some irregular coarse hackly fracture. Rare very fine silty-textured pyrite streaks.
2348.0	2349.0	Oil shale: dark brownish gray (10YR 3/2-2/2, rare 3/1). Very faint smooth to some distorted streaked bedding. Regular to irregular, thin to medium parting (some unctuous); hackly to irregular fracture. Some black fossil fragments on parting surfaces. Some thin to medium, massive to faintly bedded brownish gray dolomite stringers and bands.
2349.0	2350.0	Dolomite: medium to dark brownish gray (10YR 4/1-3/1); massive and very dense. Conchoidal fracture; some very irregular oil-stained vertical fractures. Some thin zones of dark brownish gray papery shale with some small irregular patches of silty-textured pyrite on parting surfaces.

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# LITHOLOGIC DESCRIPTION OF SAMPLES SUBMITTED FOR ASSAY

Core samples from Equity Oil Company's Oldland Corehole 3--Continued

From	To	Description
2361.0	2365.0	Oil shale: dark brownish gray (10YR and 2.5Y 3/2 and 3/1-2/2). Very faintly bedded. Irregular thin shaly to papery parting (unctuous); very hackly fracture. Rare fish scales and silty-textured pyrite patches on parting surfaces. A 0.1-foot dense faintly laminated dolomite band at base.
2365.0	2366.0	Oil shale: dark brownish gray and some brownish black (10YR 2/2-3/2, some 1/2). Very faint smooth streaked bedding and rare faint distorted laminations. Regular to irregular, thin to thick parting; slight hackly to irregular fracture. Common fine pyrite streaks and blebs near top. Some fossil fragments in upper part. Some glossy shear surfaces in lower part.
2366.0	2378.5	Oil shale: dark brownish gray (10YR 3/2 and 3/1-2/2 and 2/1). Very faint smooth to some very distorted streaked bedding. Irregular papery to some thick parting; very hackly to very irregular fracture. Some thick dense massive dolomite bands with oil stained fractures. Some very irregular fine to thin, gray to brown silty streaks and stringers. Some parts very badly broken up and mixed up; true length doubtful. Sample of oil shale with very irregular gray silty-textured stringers from 2369.5 feet: X-ray - quartz; some dolomite, pyrite, ferroan, feldspar (K and Na).
2378.5	2380.1	Siltstone and fine sandstone: light gray (7-5.5N; some very slight brown tint); dolomitic. Very faint distorted to smooth streaks and stringers; some massive. Irregular parting and fracture. Interfingering contacts at top and bottom. Sample of fine-grained sandstone from 2379.5 feet: X-ray - quartz; some dolomite, feldspar (Na and K).
2380.1	2381.3	Oil shale: dark brownish gray (10YR 3/2-2/2). Very faint very distorted streaked bedding. Very irregular to some slightly irregular, thick to thin parting; irregular to coarse hackly fracture. Some very irregular siltstone injections near top and bottom. Some irregular glossy shear surfaces.
2381.3	2382.7	Siltstone and fine sandstone: light to medium gray (6.5-4.5N; some dirty brown stains). Mottled; some gray to brownish gray contorted mudstone stringers. Irregular parting and fracture.

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# LITHOLOGIC DESCRIPTION OF SAMPLES SUBMITTED FOR ASSAY

Core samples from Equity Oil Company's Oldland Corehole 3--Continued

From	To	Description
2393.6	2395.0	Oil shale: dark brownish gray (2.5Y and 10YR 2/1-2/2). Very faint smooth to slightly distorted streaked bedding. Very regular to very irregular, medium to thin parting; irregular and rare slight hackly fracture. Some thin irregular medium brownish gray "injected" stringers in upper part. Lower part very badly broken up and mixed up; true length doubtful. Sample of dark brownish gray oil shale with regular shaly parting from 2394.1 feet: X-ray - illite, quartz; some pyrite, feldspar, dolomite.

Bottom of core.

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